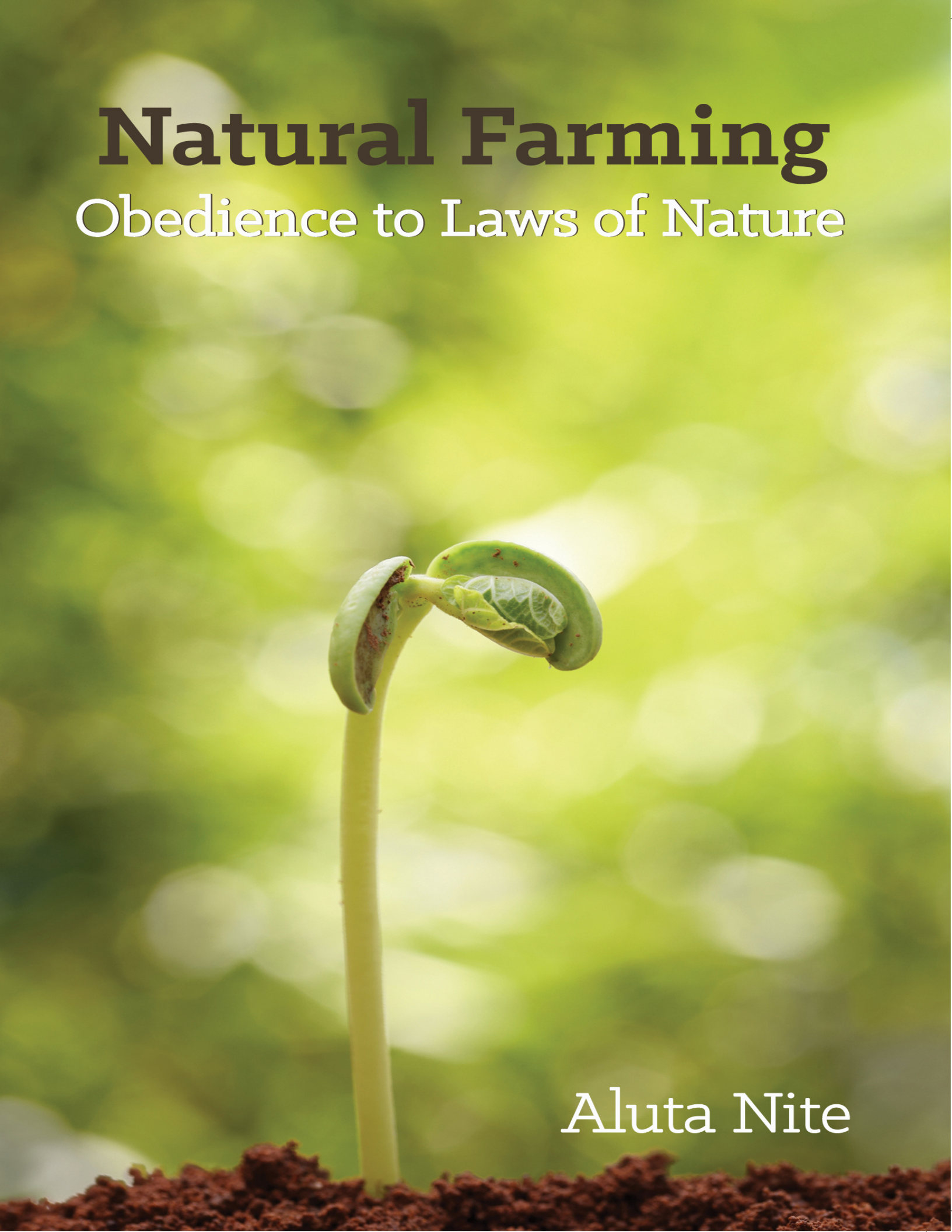
# Natural Farming

## Obedience to Laws of Nature



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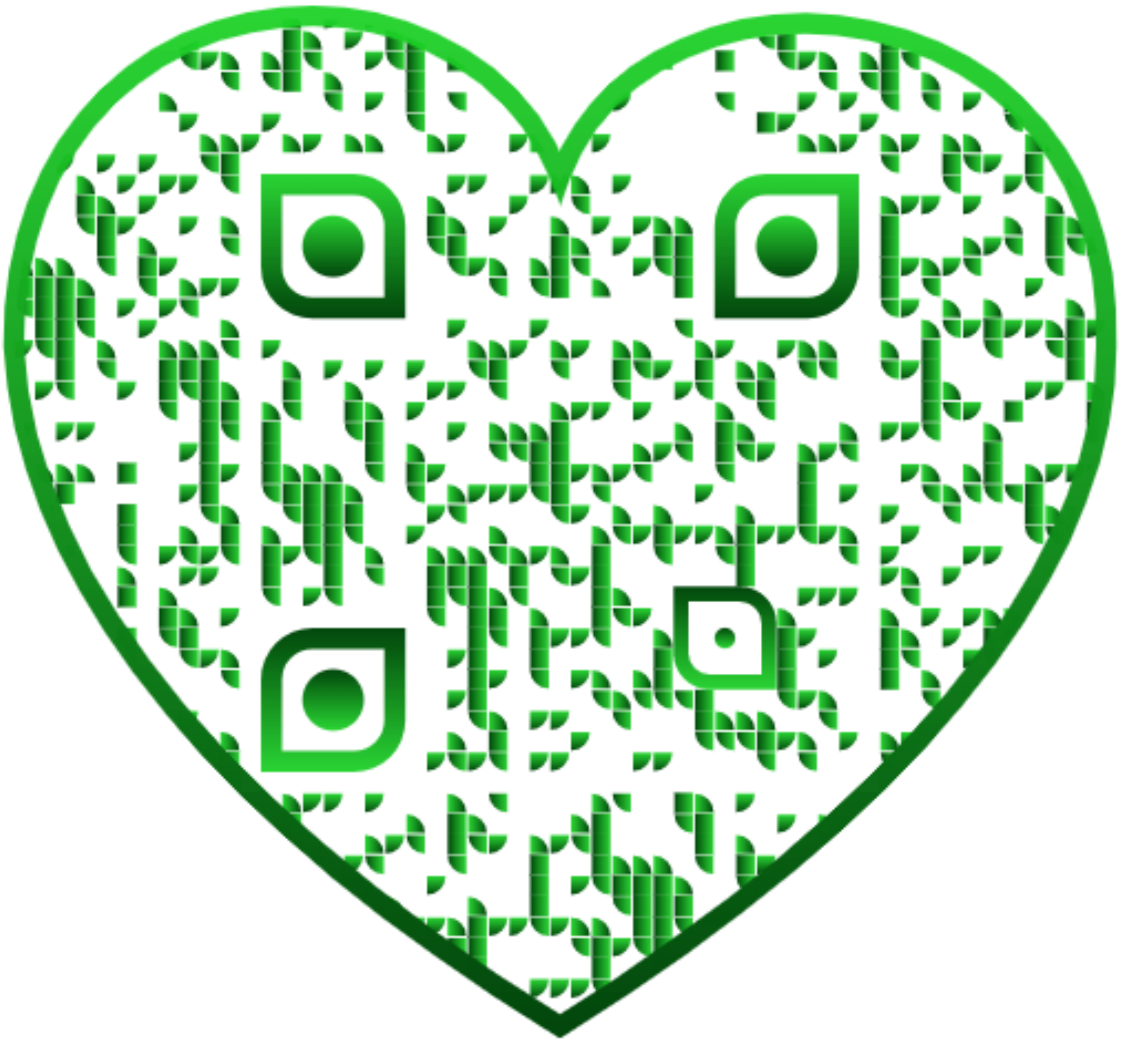

# Natural Farming Obedience to Laws of Nature

Aluta Nite

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# Introduction

Farming done the conventional way was the best thing ever. The harvests were sweet, satisfying and almost infection free. The author became an entrepreneur in this type of farming for ten years and enjoyed it thoroughly. She did this type of farming with her husband in East African coastal region and she had experienced it in childhood at her parents' farm in a rural setting.

Her family ate the produce without fear of anything as they knew where it came from. Her family was healthy. Their cattle and poultry were healthy too. They spent less money on disease treatment, medication and doctor calls.

The occasional sicknesses were not severe because of the care and knowledge in what they, their cattle and poultry ate. The soil was enriched naturally and production swings were not alarming except when Mother Nature brought less or too much rain or they failed to irrigate adequately.

Water for irrigation was from a dug out well with concrete walls, a built up top and cover. A sub-massive pump was imbedded inside the forty one feet depth. Water was pumped into a big built up reservoir next to the well and then using a portable surface pump, pumped to the gardens through plastic pipes or drawn into water cans from taps strategically placed all over the ground.

The water was a bit saline as the area was near the sea but it was still good for plants, cattle and poultry, cooking, washing and cleaning.

They did not know the cost of pesticides, herbicides and synthetic fertilizers or where to

get them because they were not interested in them.
Intercropping legumes with grain crops helped reduce weeds as legumes provided ground cover that deterred weeds. Legumes also provided nitrogen to the soil through their root nodules.
Weeding was done several times per production period in order to fight weeds but it was worth it.
They uprooted the disturbing weed called Striga that impoverished the soil even during the dry spell when seasonal crops were not planted and burnt it, but it was worth it.
They went round and round removing any plant that showed signs of attack by stalk borer, tomato blight, sweet potato bug and the like and buried them underground, but, in the end, it was worth it.
There was Agroforestry practice around the farm to deter some of the culprits like stalk borer.
There was the blend of stuff like dry chili peppers and ashes from burnt firewood at the cooking place i.e. the three stones tripod and charcoal burners to act as pesticides on their plants.
There were plenty of herbs from leaves, bark and seeds of a tree plant called Neem in and around the farm whose solution they used as pesticides on their plants as well and also to treat their cattle, poultry and themselves. The leaves, seeds and bark of this tree are used as herbal medicine and to produce soap and many other products in this region and to produce herbal toothpaste in India.
Shelled dry crops like maize and groundnuts and threshed dry crops like millet, sorghum, quinoa and lentils were preserved with the same ashes to keep away vermin. They were then put in huge jute or sisal sacks and kept in a clean dry store

within the farmhouse where plenty of air circulated. They were winnowed and washed before cooking or grinding.
Unshelled maize on the cob and peeled dry crops like cassava, sweet potatoes and cooking bananas were stored in granaries walled with chicken coup wire mesh and netting all round and from top to bottom including doors or windows to deter rats and the like. Plenty of air circulated within the granaries.
There was enough waste at the farm to act as fertilizer e.g. stalks, grass, dung and others.
Crop rotation helped enrich the soil, as some crops like maize, millet, sorghum and quinoa demanded more from the soil than others.
The only limitation was not being able to utilize a lot of land because they did not have it, but whatever they had which was three acres, they put every inch of it to use and it yielded enough produce for one full year’s subsistence and sales.
They used no mechanization due to cost factor and the land being stony.
They got extra cattle feed from public land reserved for future road construction and also from private empty land belonging to absent landowners who appeared in sight maybe like once in ten years.
To wash crockery, they used the same ashes; and in some instances when scrubbing stubborn stains from saucepans, they used coarse sand from the river nearby.
When brushing teeth, they used herbal twigs called Mswaki from particular bushes known to be medicinal. One of the bushes is known as Mda. In fact one of the herbal tooth pastes in the market at the moment from India is called Meswak. Their

teeth were clean and healthy and the gums were infection and pain free.

Their farm was initially a quarry where men excavated coral stones and quarry waste for construction purposes. As a result of this, the land was undulating, but they did not do anything to change the landscape. They simply used the land the way it was. This made it beautiful and unique.

There were depressions, flat ground, sloppy areas and hilly parts scattered all over. And that was their farm and home. As a result, the top soil was thin because coral rock was right underneath the top soil.

Sometimes, it rained continuously day and night for one, two, three, four, five and even six days without any ray of sunshine or a stop for any meaningful work to be done on the land. Luckily, the area had sandy soil that drained water quickly into the aquifers that formed ground water and made well accessibility easy.

At such times, the problem became mushrooming of thick, healthy weeds that had to be dealt with urgently, but in the end the animals got very fresh feed that they loved and sometimes, it made some of them produce rather liquid dung, but it did not make them sick.

The family too, benefited in that they were able to gutter harvest enough rainwater from their farmhouse roof and stored plenty of it in their built up stone tank. This was the water that they used for drinking throughout the year.

They sustained themselves with milk, grains crops, nuts, legumes, root crops, vegetables, fruits and meat. The farm sustained itself from milk, vegetables, fruits, male calves and old cows’ sale proceeds.

Due to extreme heat in the tropics especially around the equator, they only watered and irrigated whatever they were growing early in the mornings and in the evenings when the sun was less intense to avoid severe evaporation and allow some moisture to remain in the soil and sustain plants in the heat the next day.

# Dedicated to:

All who desire and implement natural farming

# Acknowledging:

All those practicing natural farming

# Contents

**Introduction**
**Chapter 1: Compost**
Compost
**Chapter 2: Cattle**
Cattle Part 1: Dairy Cows
Cattle Part 2: Calves
Cattle Part 3: Sheep and Goats
Cattle Part 4: Rabbits
**Chapter 3: Poultry**
Poultry Part 1: Chicken
Poultry Part 2: Ducks
Poultry Part 3: Geese
Poultry Part 4: Turkeys
Poultry Part 5: Guinea Fowls
**Chapter 4: Fruits**
Fruits Par 1: Citrus Fruits:
Fruits Part 2: Mangoes
Fruits Part 3: Passion Fruits
Fruits Part 4: Coconuts
Fruits Part 5: Guavas
Fruits Part 6: Mulberries
Fruits Part 7: Melons
Fruits Part 8: Sugar Apples (Custard Apples/Soursops)
Fruits Part 9: Pawpaw
Fruits Part 10: Bananas
**Chapter 5: Vegetables**
Vegetables Part 1: Kale and Collard Greens
Vegetables Part 2: Tomatoes
Vegetables Part 3: Capsicum (Bell Peppers)
Vegetables Part 4: Okra (Lady’s Finger)
Vegetables Part 5: Eggplants (Aubergines)
Vegetables Part 6: Onions
Vegetables Par 7: Amaranth

Vegetables Part 8: Bitter Vegetables
Vegetables Part 9: Cucumbers and Zucchini (Courgettes)
Vegetables Part 10: Pumpkins
Vegetables Part 11: Chili Peppers
Vegetables Part 12: Fennel
Vegetables Part 13: Broccoli
**Chapter 6: Grain Crops**
Grain Crops Part 1: Maize [Corn]
Grain Crops Part 2: Millet
Grain Crops Part 3: Sorghum
Grain Crops Part 4: Quinoa
**Chapter 7: Legumes**
Legumes Part 1: Beans
Legumes Part 2: Cow-peas
Legumes Part 3: Green Grams (Lentils)
Legumes Part 4: Pigeon Peas
**Chapter 8: Groundnuts and Tree Nuts**
Nuts Part 1: Bambara Nuts
Nuts Part 2: Peanuts
Nuts Part 3: Cashew Nuts
**Chapter 9: Root Crops**
Root Crops Part 1: Cassava/Manioc/Tapioca
Root Crops Part 2: Sweet Potatoes
Root Crops Part 3: Ginger
**Chapter 10: Grasses**
Grasses Part 1: Lemon Grass
Grasses Part 2: Sugar Cane
Grasses Part 3: Napier Grass
Grasses Part 4: Mukuna
Grasses Part 5: Elephant Grass
Grasses Part 6: Couch Grass
Grasses Part 7: Lukina
**Chapter 11: Conclusion**

# What we farmed, methods and results.

# Chapter 1: Compost

We had various types of compost:

- Dung
- Leftovers from two sheds
- Leftovers from the farmhouse
- Leftovers from pruning
- Leftovers from crops

# Compost

We had five depressions of compost next to each other. Fresh dung was heaped in the first one where only raw dung stayed for about one month without any additions, deductions or disturbances of whatever nature. This was the stage when flies really loved that particular spot.

The other lovers of this spot at this stage were dung beetles that like flies harvested where they did not sow by rolling chunks of dung away to build their homes nearby or far off and laid their eggs therein. That was ecosystem-taking place and after all, life is supposed to be “live and let others live or be and let others be.”

During the second month, wet dung started drying up into chunks. We put on our boots and with shovels and hoes went inside the spot and turned the dung upside down to break it into small portions. What was proving to be hard due to extreme heat, we broke down with small hammers, tongs, trowels the back of the hoes.

We let it stay for another month and broke it down further during the fourth month. By the fifth month, it was looking dark, rich and nice with earthworms and white fat segmented worms rolling around making it their home. The two broke it down further to humus and that is when we knew that it was ready to be used.

By this time it had reduced in volume to merely half of what it was originally. It was ready to be

added to the land. Pails and wheel burrows of it was carried to the land. Plants were very happy to receive it as it promoted their development.

Four other depressions of dung carried dung in different stages of decomposition. At any one time one lot was ready for usage. It was really beneficial to the soil and whatever was growing therein. Weeds competed with the plants where humus was put, but we were also ready to tackle them via uprooting and weeding.

Some of the weeds were actually cattle feed and as we uprooted them, we were harvesting feed. Some of the farmhouse wastes and crops’ leftovers the animals did not like, all formed part of the compost.

The leftover grass from the feeding troughs for the cattle and poultry was either used as mulch for some crops like bananas or put on the fifth compost spot to be used on the land after it had been broken down to humus by us and worms. This is also where we put leaves from trees when pruning had been done especially those not eaten by the animals.

# Chapter 2: Cattle

We had four types of cattle:

Part 1: Dairy Cows
Part 2: Calves
Part 3: Sheep and Goats
Part 4: Rabbits

# Cattle Part 1: Dairy Cows

We bought our initial four dairy cows as heifers in calf at three years of age from four different institutions that practiced natural farming in the region so there was no transition problem a part from the cows getting used to new housing and new handlers that was our farm, our farm helpers and us.

Dairy cows were the mainstay of our farm. Within the range of dairy cows, we had the following breeds: Jerseys, Guernseys, Ayshers and a crossbreed of Brown Swiss and Zebu.

Due to shortage of adequate grazing land that could be divided into paddocks, we practiced what was known as ‘zero grazing’. This meant that our cows had to stay indoors day and night except when they were being bathed, that was every two to four weeks to prevent tick infection and a disease called Nagana as the area was heavily infested with tsetse flies.

As a result, a big shed was built at the back of the homestead as follows. From the floor up to a height of four feet was solid stone wall. The middle section was supported with pillars and covered with strong wire mesh inside and nylon netting on the outside to let in air, light and prevent ticks and tsetse flies from getting inside. Even ordinary houseflies were not present in the building.

A ring beam resting on the pillars was built above the middles section to hold trusses for the roof followed by a permanent tile roof with no gaps to stop anything small from entering the shed. The floor was made particularly hard with quarry waste and rough rendering to withstand the weight of the cows and their hooves.

The door was made of the same wire mesh and netting as well which was kept closed at any one time to prevent predators from entering. A big trough was erected inside the shed for drinking water. Milking, eating, sleeping and standing areas were all available inside the building.

The shed was cleaned twice daily: soon after early morning and late afternoon milking and the wet dung removed and heaped at the appropriate place described in chapter one. Urine and waste water was directed through two different pipes to the banana plantation nearby. Fresh water was supplied twice a day.

Adequate feed was supplied two times a day, soon after each cleaning. The cows got used to eating only during the day till sleeping time, something like fourteen hours a day. The eating trough was divided into ten smaller sections with yokes halfway up to stop cows from getting inside or messing it up with dung or urine.

The feed was compost of a type of grass called Napier, a sweet cane like grass that was planted on the farm. It was planted in rows to make it easy to follow lines while weeding, putting manure, watering during the dry season or cutting. It grew quickly and was ready for cutting every

two to three weeks. It was chopped to tiny portions for cows to devour easily.

There was a leguminous tendril called Mukuna planted along the back fence and it was rich in protein. Its broad leaves were cut every now and then for them to eat. It was particularly very good for cows that were being milked as it promoted milk production. Tendril and leaf development was pretty fast after each harvest.

There were tiny leaves from certain big trees called Lukina that were harvested from along the track outside the farm and along the main road. It was particularly used as lull feed for lactating cows during milking times instead of dairy meal, as cows adored it at such times. Cows again tended to produce more milk when fed these leaves.

These leaves were available every time; it was a question of climbing higher up the trees to harvest the young branches bearing the small eaves. And as the wind and birds dispersed their seeds, young seedlings sprang up and more trees developed.

Then, there was the ordinary elephant grass, couch grass and others that were cut within and without the farm. The elephant grass is the one we made hay from after long rainy days with dry spells in between.

Also, there were farm wastes like maize husks, seedless cobs and stems; leguminous plants’ pods, stems, roots and leaves; fruits like pawpaw, citrus and banana leaves and stems; vegetable wastes at harvesting time; cassava leaves and sweet potato

vines; kitchen wastes like fruit and vegetable peels.

When pruning fruit trees and some of the indigenous trees, feed was being made available like in the case of mulberry trees whose leaves cows loved dearly.

Milking was done at the enclosed milking area while cows licked thick molasses from sugar cane or ate tiny Lukina leaves mentioned above or dairy meal made from maize germ and bran removed from whole maize by the millers grinding and packaging sifted maize flour for human consumption.

Sugar cane was grown widely within the region as the area is a sugar cane belt and a mill was available nearby. Other such mills were in the hinterland where more sugar cane was grown.

Hand milking was done every day after washing the udders with warm water plus a little salt and a clean towel. As milking salve, we used a little cream from the previous evening’s or morning milk depending on the time of milking.

Salt block for licking was provided in a small trough inside the shed. Coarse salt mining was done within the region by the sea.

The shed could comfortably accommodate up to ten cows, with enough room to give them maneuverability without pushing each other unnecessarily. Their calves were housed in the second such shed just next to this one.

The absence of calves nearby eased the milking procedure. The cows accepted the fact that they were there to produce milk and they were happy doing just that and so there was no fighting with any of them or tying any of them at milking time. They simply stayed put eating dairy meal or Lukina or licking molasses.

There could be slight problems only when a cow was not feeling very well in which case we got to the bottom of it like when the cows were on heat and became very sensitive once every month especially those not in calf.
The cows were inseminated via vials to avoid keeping bulls apart from male calves not yet weaned. The amount of land dictated this and bulls were not profitable. This helped reduce diseases in the cows by not mating with various bulls some of who could be infected.

Semen was harvested by experts from different types of exotic bulls of different breeds, labled appropriately and sold to farmers as per the farmers' choices. Vials of insemination fluid were kept in nitrogen filled tanks and safely stored in agricultural offices where qualified personnel monitored and handled them. Farmers contributed money for nitrogen purchases.

We called the agricultural officers when we needed them and they came on motorbikes to service our animals at a fee and we also paid for the cost of their transport and that of the insemination vials.

We had a book for each cow where we kept records of everything about her like date of birth,

parents, first calving, number of calves, bull type of insemination vials used, sickness and history of heat in order to know when she would be on heat again and call the respective personnel within twenty-four hours of the onset of heat otherwise it meant waiting for another month.
The cows calved once every one to two years depending on the accurate timing of the heat and insemination successes.

This type of insemination was very good for us because we did not want in breeding that could weaken the herd. We did not even allow a mother and her daughter to have the same types of insemination vial numbers either that could have meant same bulls for both of them.

The only problem with this method was that some of the cows did not clearly show their heat signs and we had to spend so much time with them in order to determine their status when we expected them to be on heat going by the calendars we kept.

The cows all calved all the time without any problem. Luckily, none calved at night and we were always there during the day as they calved and we assisted where necessary. The calves were all normal and upbeat. We never needed a veterinary officer at such times.

The cows gave us milk that we sold raw (unpasteurized and un-homogenized). The milk was thick, tasty and yellowish in color and our clients loved it compared to the commercial one. The cows were milked till they were about one month to their next calving. This allowed them enough time to develop colostrum for the next calves.

The cows gave birth to calves that increased our herd if they were females and brought us money if they were males. We got raw dung from the cows every day and through a laborious process turned it into manure that we used to fertilize the land where we grew grains crops, legumes, groundnuts, root crops, vegetables, bananas, fruits and cattle feed.

In time of sickness, most of the ailments were treated with herbs either from within the farm or around the farm like Neem trees known for treating ‘forty diseases’ in man, cattle and poultry.

Our cows were bathed with a solution from Neem tree seeds, leaves and the bark boiled in water and cooled. Bathing took place in an open permanent rectangle consisting of eight thick durable poles with four poles on each long side and two planks of wood tied with strong twine on the middle parts of the two long sides.

Another two planks were tied at the rear and the front of the short sides after putting in a cow to act as a restraint at the time of use.

The solution was scooped with a plastic jug from a pail and poured on the cows while brushing the body with a soft brush to get rid of dirt and any parasites under the hair and skin.

The restrain was done to stop any cow from running into any garden.  The small animals did not need this type of control as one rope could do on just one of the poles. The same solution when cool was

given to cows that showed signs of fever or weakness or diarrhea or lack of appetite.

Some cows eating lush grass springing up after the onset of the heavy rainy season developed diarrhea after having been used to eating hay. Sometimes, fever, weakness and lack of appetite came about after occasional tick bites through feed cut and delivered with ticks especially grass from outside the farm.

We sold milk and got money. The farm’s main financial sustenance came from milk production. Sixty-seven percent of the milk produced daily was for sale and the remainder was for calves and home consumption including our helpers.

Old and unprofitable cows, milk and delivery-wise were sold to butchers.

The things we feared most on the cows were their horns and hooves. In anger, the horns could pierce one to total misery and the hooves could break one’s feet if they stepped on one’s feet. We had to be very careful all the time. Those were the disadvantages of zero grazing. Luckily, none of this happened to any of us.

The experts had advised us that if by mistake a cow stepped on any of us, the solution was not to struggle to remove one’s foot from under her hoof as it would cause tearing and serious injury. The solution was to stay put till the cow moved away because that way the injury would be minimal or not felt at all.

The heifers in calf we bought initially were not interfered with even if their horns were big because we did not wish to endanger them in their already developed bodies.

# Cattle Part 2: Calves

Calves born at the farm were removed from their mothers immediately to prevent them from getting used to suckling every time and reducing the portion of the milk for sale and home consumption.

Also, it could be difficult to wean them from suckling and to orientate them in self-feeding. Too, they could delay in learning how to eat grass. They were housed in one of the compartments in the second shed where sheep, goats, rabbits and poultry slept or stayed.

The rich egg like first three days' milk (colostrum) after delivery was all given to the respective calf in a pail. We had to hold the pails for them and carefully too because of their hitting the pails as they imitated suckling teats.

After sometime, they took the milk on their own without any assistance. Some farmers in the neighborhood used bottles to feed their calves. After every milking time, the calves got fed fresh, raw and adequate milk. Some milk was set aside for their last feed that was before locking their door for the night. They were thus fed milk three times a day.
We increased the amount of milk given to them gradually every two weeks as they developed. In between, they drank a little water from a small trough filled for each one at a time to avoid over drinking water while thinking that it was milk, as

this would cause other problems like bloated stomach and death.

After one month, they started eating a little dairy meal in a small trough at one corner of the compartment once a day. After two months, they started eating tiny blades of soft grasses that we provided at another small trough at another corner of the compartment.

As time went by, we gradually increased the amount of grass given. This schedule continued as they learned to enjoy eating gra*ss*.

After three months, we reduced the milk feeds to two but increased the quantity with what came from the third feed.

In their premises, they leaned to eat grass quickly and to drink water well. They became independent pretty fast too.

After six months, we gradually decreased the quantity of milk feed on weekly basis. They were weaned out at seven months.

Male calves were sold soon after weaning them out of milk or slaughtered as veal because of land shortage and to avoid in breeding and transfer of venereal diseases among the herd.

By the time female calves got weaned out, they could eat adequate grass and of various types. They joined their mothers in the big shed when they were a year old to continuing growing and later on join in the cycle of reproduction. As

they became heifers between one and two years old, we started observing them for heat signs.

Their unification with their mothers in the big shed was interesting because despite being away from each other for that long, they still knew each other and rubbed each other as family. By the time the calves moved back to join their mothers, their mothers were in calf again though still producing milk.

Not to forget to mention that while the calves were away in the small shed, their mothers knew their sounds and when the calves howled, their mothers became alert and sometimes responded.

Their waste was collected every day and formed part of the compost for produce farming. Their urine and waste water drained through pipes into the banana plantation.

In sickness, they too were treated with Neem tree byproducts' solution just like their mothers except that the dosage differed due to their age and size. Drastic changes in weather seemed to be the culprit in causing their distress sometimes.

In some cases, young calves had their tiny horns seared off with hot tongs after numbing with surgical spirit just as the horns were starting to come out to stop them from ever growing. The healing was pretty fast.

The horns started appearing or protruding at about one month of age. We knew they were coming up because we touched the heads to find out when we

saw the calves starting to rub them against pillars and partitions due to itchiness.

If the horns grew a little and the calves proved to be rough and dangerous then the base of the horns were numbed with surgical spirit and cut off with a small hacksaw and herbs applied till healed as stumps. This was done when they were not yet weaned out.

# Cattle Part 3: Sheep and Goats

We acquired our initial sheep and goats in pairs from local traders who dealt in small cattle all over the region. Sheep and goats were a lot of fun at out farm. They are the only ones that we allowed outside during the day. At night they slept in one of the compartments in the second shed resembling that of the cows in built and size.

The two shared this shed with calves, rabbits and poultry, but in different sections with partitions and doors to avoid fighting each other in any way possible or fighting over feed or water.

The sheep were the Dorper type or black nape or black heads with white bodies. The goats were plain black or white.

Sheep and goats were let outside as early as six in the morning depending on the seasons. They were pegged to indigenous trees or boulders or curves and loops carved out of the ground coral rocks within our compound where they ate and got changed to different areas when they had done a good job in one area.

There was one very good thing about tethering. Where they were tethered, they left their rich urine and dung that did very good justice to the growth in such areas. As a result, very good grass developed and very fast too and this promoted more feed for themselves in short periods of time so

long as there was little rain. With a lot of rain, the grass became too much for them to handle and we had to slash it and give it to the cows.

Water was provided for them in a built concrete trough in the compound. Water was supplied to the trough mid-morning and mid-afternoon to satisfy their thirst when the sun was hottest and in the evening before being taken back to the shed. They were taken to the trough two at a time to drink and get tethered again except when they were being taken in for the night.

They remained tethered throughout the day because vegetables, young fruit trees, grain crops, legumes and root crops were all growing within vicinity and they would cause havoc to the plants especially the goats that were rather wild. And, some vegetables were also irrigated during the dry seasons.

Goats in particular were very destructive if at all they got the chance occasionally in the mornings when they were being taken out or in the evenings when they were being taken inside or during the day if one happened to have a weak rope that gave way and we were not in the vicinity.

They would run to the restricted areas and really damage whatever they could reach quickly. And even catching them to have them get new ropes would be a big job for quite some time. The alternative at such times was for one of us to be a shepherd till evening when they would get into their shed.

As soon as they were inside their shed, the ropes were removed and hanged on the trusses above them.

The ropes were then put on them in the mornings just before taking them outside.

They also got bathed once a month to take care of any ticks that could be on them. Once or twice a week we took them outside the farm gate to graze wildly in the open under our guard so that they could not get lost or the chance to cause damage to neighbors' property.

This was mainly along the track running parallel to the farm fence. Goats were very happy at such times because they are climbers and neck strainers and so they could reach many branches of trees and bushes along the sides of the track.

Sheep were humble animals that preferred flocking together as the saying goes and clean sweep wherever they were tethered or just concentrate at one place when they were taken outside the compound.

Both sheep and goats multiplied very fast. Ewes and she-goats gave birth twice a year and in six months the lambs and kids were big enough for slaughter and or mating.

Even in these small animals, we did not allow in breeding so we changed rams and Billy goats often. We slaughtered the old rams and Billy goats for food or gave them away to other breeders around and brought in young ones from far away.

Male lambs and kids born at the farm were eaten by us or given out to those who desired them for their herds.

The lambs and kids were suckled by their mothers till their mothers refused them from doing so or they themselves stopped it.

We kept sheep and goats strictly for home consumption and their female lambs and kids for multiplication.

Their waste was collected every day and formed part of the compost for produce farming. Their urine drained through a pipe into the banana plantation.

In sickness, they were treated with Neem tree byproducts' solution except that the dosage differed due to their size and age. Their sickness was mostly colds and coughs especially with drastic changes in weather. A few of them had their hooves trimmed with scissors when they looked crooked or overgrown.

# Cattle Part 4: Rabbits

A young neighbor breeder sold to us our initial two pairs of white rabbits. Rabbits too were housed with the smaller cattle and poultry in the same shed but different compartments. They had their cages built within the compartment and so they never stepped down on the floor where others walked, ate or drunk water.

Their cages were built in such a way that their droppings penetrated the gaps at the bottom of the cages and dropped on the floor.

Their feed was very different from that of cattle and poultry. They ate some milky bitter vegetable called Mchunga and dandelion both of which were also eaten by us.

They were supplied with these twice a day and they ate the tiny leaves plus the top twigs and left the hard stems. Mchunga grew wildly and easily in the vicinity even during the dry season. Dandelion was plentiful during the two rainy seasons.

They too were pretty hardy and hardly showed any signs of sickness. The good thing about them is that they multiplied faster than cattle and poultry. Every three months, the female rabbits (does) had about four to six litters each and the pregnancies lasted only one month. They thus had births three times a year.

And the litters grew very fast indeed. At three months old, they were big enough to be eaten.

They provided us with a lot of sweet and tender meat very often. And their waste helped in the building of compost.

They were very easy to handle, as they did not even need to go outside. They remained clean looking all the time.

# Chapter 3: Poultry

We had five types of poultry:


Part 1: Chicken
Part 2: Ducks
Part 3: Geese
Part 4: Turkeys
Part 5: Guinea Fowls

# Poultry Part 1: Chicken

We bought our initial five pairs of chicken breeds from the institute of agriculture in the region where natural farming was practiced.

Our chicken consisted of a variety from the short legged to long legged; small size to big size; red color to black color; plain white to spotted; brown color to mixed color; ruffled feathered to bare necked; some with down on their legs and some with crew-cut hair style or Mohawk on the heads.

All the five pairs were young and just about to reach the age of maturity. Soon after, some of the hens were making the usual noise before laying starts while some were laying eggs. Later, some were brooding while some had chicks. Much later, others were in no scenario at all because they were young and growing up or they were old and not active in anyway.

Cocks were either young or old and did nothing but fight each other while not eating or dosing off. The old cocks were the ones we slaughtered mostly followed by old hens and then hens whose production traits were not good due to laying few eggs or inability to care for chicks properly or not hatching all eggs laid or eating own eggs or messing the eggs by pooping on them.

The chicken, ducks, geese, turkeys and guinea fowls had their own compartment in the second shed where calves, sheep, goats and rabbits stayed.

They had built in racks to jump on, patch on and rest on or dose off. Hens had built in boxes filled with sawdust to lay eggs in and hatch.

The compartment was swept every morning and fresh water supplied in a trough. They were fed grains like maize, millet and sorghum, fresh vegetable leftovers and fresh grass twice daily.

They too stayed indoors throughout the day, but in the evenings, they were let out for two to three hours depending on the seasons to run around, stretch their legs and pick some worms under close supervision to stop them from reaching the gardens. They were kept inside so as not to give them the chance to spoil vegetables and other crops.

It is amazing that we did not have to force them to go back inside at nightfall because they simply went and stood by the shed door for the door to be opened for them to walk in.

Hens laid eggs ranging from ten to twenty-four a season depending on the type. Some of the hens hatched all their eggs while some left some un-hatched. Some ate some of their eggs while some pooped on some of their eggs and those eggs got rotten. Some were just careless and un-nurturing and stepped on some of their eggs and broke them.

Some survived all their chicks while some lost some along the way due to mild illnesses or drastic weather conditions in the tropical heat around the equator or through bad traits of some hens who unnecessarily stepped on their chicks regardless of the cry from the chicks.

Some types were hardier than others though. Some hens left their chicks in order to start laying eggs again sooner than others.

We kept them strictly for multiplication and home consumption and their eggs as well.

Their waste was collected every day and formed part of the compost for produce farming.

Chicken are the ones who showed signs of sickness more than the other members of the poultry community and they were also treated with Neem tree byproducts’ solution except the dosage differed due to their size.

We noticed signs of sickness when the color of their combs or crests or crowns and texture of their stool changed and they also looked gloomy, droopy and not eating well and preferred sitting or sleeping. But they responded to treatment very well and none died apart from a few who escaped through the fence to faraway places in the evenings and were caught and eaten by small wild animals.

We followed their tracks or cry and found bones and feathers where they were attacked. But that too, we accepted as ecosystem in action.

# Poultry Part 2: Ducks

We bought our initial duck pair from a local breeder who specialized in breeding them for food because he found them tastier than chicken. Ducks lived in the same compartment as chicken, geese, turkeys and guinea fowls and they got on just fine.

They ate together from same feeds and drank water from the same rough. They were taken out together and they went back inside together. The pair we bought was young and the female had her first eggs at our farm.

The only two things that set them apart were that they had a special water trough outside where they spent most of their evenings with our geese instead of scratching the ground and picking worms like chicken and other poultry. They loved the water trough so much that they used to be the last to head to the door at nightfall.

The other difference between them and chicken is that she-ducks laid very many eggs with a minimum of twenty eggs. Their eggs too were bigger. But they seemed to be poorer in caring for their chicks than chicken. They had more deaths through chicks being stepped on by the careless grown females and drakes.
Their time for caring for the chicks was longer than that of chicken.

Their meat was extremely tasty, much tastier than that of chicken.

We kept them just for home consumption and multiplication and their eggs were strictly for multiplication.

Their waste was collected every day and formed part of the compost for produce farming.

Adult ducks were very healthy but when other poultry got sick, they too were treated just as a precautionary measure with Neem tree byproducts' solution except the dosage differed due to their size.

# Poultry Part 3: Geese

We bought our initial geese pair from a breeder in the city who kept them especially for their gracefulness, policing and food. Geese were the policemen of our farm in that despite the fact that they stayed inside their compartment with the other poultry, they still knew when somebody entered the homestead and they growled.

When somebody other than us entered the shed, it was all out war. And in the evenings when they were outside swimming in the water trough with the ducks and someone arrived, they did not take it lightly.

Fortunately, they did not fight chicken, ducks, guinea fowls or turkeys. They did not fight the calves, sheep, goats or rabbits either that shared the shed with them though in different compartments.

They were only bad with outsiders or new residents at the farm. They could peck somebody seriously with the necks curved to any direction.

Males and females (ganders and geese) paired like human beings and remained so as long as we had them at the farm. The pair we bought was young and the female had her first eggs at our farm.

They were interesting when it came to laying eggs. The females laid eggs only once in two years. Over and above that they only laid six eggs maximum.

The eggs were huge. Their chicks were a completely different color from their parents. The chicks took the parents’ colors much later. The females took very good care of their chicks.

They too ate what the chicken, ducks, turkeys and guinea fowls ate every day. They were huge and very meaty when slaughtered.

We kept them too for home consumption and multiplication and their eggs for multiplication only.

Their waste was collected every day and formed part of the compost for produce farming.

Just like the ducks, adult geese were very healthy and robust, but when other poultry got sick we treated them too as a precautionary measure with Neem tree byproducts’ solution except the dosage differed due to their size.

# Poultry Part 4: Turkeys

We bought our initial turkey pair from a city breeder who bred them religiously for Christmas sale to his friends and acquaintances that placed orders with him early in the year. They were not mass-produced or for general sale. They were young and ready to start a family.

Turkeys were the giants of the poultry community in our farm. They too stayed in the same compartment as the other poultry and only went out in the evenings. They ate the same food and drank water from the same trough as the other poultry.

At times of laying eggs, the female turkeys were separated from the other poultry because they needed more coaxing and quietness. They were transferred to a dark store under the outside stairs of the main house where they laid eggs and brooded till hatching time and for some time after.

They laid the most eggs. They easily laid thirty eggs or more at one session. The only problem came after hatching. The chicks were very weak and delicate and needed a lot of care by way of warmth and no wetness at all on the ground where they stepped.
We left the chicks and their mothers in this secluded place that had to be kept extra clean, dry and warm till they developed to a reasonable size. Only then did we transfer them back to live with the other poultry.

Despite the struggle to keep the chicks under special conditions, some still did not make it and died before they were four weeks old. Those who survived looked weak for a while then started gaining weight and strength after about two months.

We fed the chicks a lot of fresh grass and vegetables besides their daily feed of maize meal and coconut grits at this period to up their vitamin intake and immunity. We had to put their water in a container and tie the container in such a way that they could not tilt it and pour the water that they did not like stepping on.

It was a job calling for dedication and we were up to it and it paid off as we enjoyed eating their meat whenever we slaughtered one and their numbers increased. Their waste was manure to the whole farming activity.

Just like ducks and geese, adult turkeys were pretty healthy most of the time but when the other poultry showed signs of sickness, we treated them too just as precautionary measure with the same herb solution except the dosage differed going by their size.

She-turkeys were very humble and cooed very quietly even with their chicks. This was very much unlike the geese, she-ducks, hens and she-guinea fowls.

Tom turkeys were fun to watch and interact with. Maybe peacocks are not that proud sometimes. They went beyond pride especially when they meant to

pick quarrels with an individual. Their neck ties were out and they enlarged themselves like a brooding hen or a hen with chicks as their protruding head combs became even longer.

They would size someone up and down while making possible attack noises and move towards the person aggressively. If one was not familiar with them, one would run for dear life and they would follow suite. But if one was familiar with them, one just stood their ground till they could give up.

Some of them fought several wars with various individuals within the homestead and herdsmen and their dogs passing by the farm with cattle on their way home or to waterholes during the short periods in the evenings when they were outside.

# Poultry Part 5: Guinea Fowls

We got our initial guinea fowl pair from a local breeder who kept them for their beauty and food. Guinea fowls were the most sensitive and secretive part of the poultry community we had. They too stayed with the chicken, geese, ducks and turkeys in the same compartment. They ate the same food and drank water from the same trough.

They were very hardy and hardly fell sick or miserable. When not eating, they preferred staying up on top of the partitions and roof trusses because of their sensitivity. And when they were down eating or just lying down and one of us entered the building, they would suddenly get up and jump to the top of the partitions and roof trusses.

Sometimes, they jumped even before we entered the building just by the mere fact that they heard footsteps outside of the shed or a touch on the door latch. But, they were good eaters and concentrated on their eating till they got really satisfied.

They were agile, active and alert all the time. But due to their very nature of having come from the wild originally and then tamed, they were hyper in such a way that mating and females laying eggs in the open was like taboo.

When we saw signs of females wanting to lay eggs, we made enclosures outside among stools of bananas

and directed them there in the course of the day where they stayed for hours and eventually laid eggs.

We had to do this because we noticed that hen guinea fowls were looking for hideouts in the evenings when they were out with the other poultry. And when they were inside the shed, they never bothered to explore the special laying boxes made for all the poultry and aggressively used by chicken, ducks and geese due to their oversensitivity.

Whenever one female laid an egg, we collected it and kept it in a box in their compartment in the shed. We did this so that we could not lose eggs to predators like snakes that were in plenty in the area.

When she stopped laying eggs, we put her in the box where her eggs were and sealed the entrance to the box so that she could not escape till she could get used to the idea of lying on her eggs by instinct except the occasional times of toileting or grabbing a little food and water.

Generally, brooding times, female poultry rarely ate, drank water or went toileting.

The ideal situation would have been to let she guinea fowls brood where they laid their eggs but we could not take that risk due to wild animals especially porcupines and wild pigs in the vicinity at night.

Female guinea fowls laid up to fifteen eggs. Their chicks were as hardy as themselves and as

sensitive as the adults.

They too were kept for food and multiplication and their eggs were for multiplication only.

Their waste was manure to the produce farming arrangement.

But all in all, they were the most beautiful among the poultry community with their polka dotted feathers of black and while plus a beautiful Mohawk on their heads and a rich blue color around their eyes

They were generally loners and spent most of the time on their own except eating and drinking times.

# Chapter 4: Fruits

We had ten types of fruits:

Part 1: Citrus Fruits
Part 2: Mangoes
Part 3: Passion Fruits
Part 4: Coconuts
Part 5: Guavas
Part 6: Mulberries
Part 7: Melons
Part 8: Sugar Apples/CustardApples/Soursops
Part 9: Pawpaw
Part 10: Bananas

# Fruits Part 1: Citrus Fruits:

- Tangerines
- Oranges
- Limes
- Lemons
- Grape Fruits

We bought one-foot tall citrus seedlings from an institute of agriculture nursery manned by government officials. With instructions on how to plant them, we dug deep enough holes considering that the terrain was stony; put in our own compost mixed with topsoil and planted them and mulched them immediately.

With the seasonal rains and our watering them during dry seasons, they flourished and in the fourth year, we started seeing a few flowers develop on the twigs. By then they were like four feet tall.

In the fifth year, there were many more flowers and bees were busy visiting the flowers. Some flowers fell off and died while some blossomed and developed into tiny fruits. We ate our first fruits that year from all the surviving trees.

To our amazement, this phenomenon was repeating itself three times a year in that while we had fruits ready to eat, some fruits were in midlife while flowers were forming again. The trees were so heavy laden that when the wind was blowing, it looked like many branches would break off due to the weight of the fruits on them but it never happened.

During the heaviest rainy season, flowers were so many that we were scared of hanging around them because of challenges from bees and pollens flying all over. Birds too loved the trees and many tiny

ones built their nests inside the branches, laid eggs and hatched young ones.
The orange fruits were the biggest in size followed by lemons then tangerines and limes came last. They were all very juicy and a joy to eat or use as an ingredient in making some dishes.
Twenty-six plants survived out of a total of thirty-nine planted originally with at least four of each type of citrus. The area being stony made the roots find it difficult to penetrate deeper for better survival and that is why a third of the seedlings dried up.
The withering and dying were no surprise to us but we were determined to grow and nurture them anyway.
The lemon trees were tallest, followed by tangerines, then oranges then finally limes.
Lime trees were the bushiest followed by tangerines, then oranges and finally lemons.
We thought that we were planting them just for our use, but it turned out that the fruits were too many for our use and we ended up selling most of them for the well-needed cash.
We groomed the tress by pruning the low hanging branches during the period that the trees had less fruit otherwise it would have meant destroying many flowers, young fruits or fruits about to mature.
Goats loved eating the leaves of the citrus trees and we gave them the trimmed branches to enjoy on such days. Whatever fruit that happened to be on the branches that could not be eaten or used because of immaturity, was given to the cows.
We weeded around the trees often to remove any weeds and sometimes, we tied sheep in this particular orchard to eat the grass around but never goats because of their destructive nature.

We put manure around the trees like every four months especially just around the onset of the long and short rains.
The trees formed beautiful canopies during the hot seasons and we enjoyed sitting under them. Even sheep loved resting under the shades.
We ate fresh citrus fruits and drank fresh citrus juice all the year round.
We had no disease problem with the citrus trees apart from occasional disturbance from some type of tiny black insect or fly like settling on some sides of some of the trees and making the leaves and fruit dirty looking. We sprayed a solution of ashes mixed with chili peppers or Neem tree byproducts solution on such areas and the insects shifted elsewhere.
The region was dominated by citrus fruits.

# Fruits Part 2: Mangoes

Our mango trees were initiated entirely by ourselves. We bought several types of mango fruits that we liked and enjoyed eating in the local market. After eating them, we planted the seeds in containers and kept the containers under a baobab tree in the homestead where there was plenty of cool air circulating and occasional or streaks of sunshine.

After about one month the seeds sprouted under our eyes and started developing very well. When they were about one foot tall and we reckoned that the roots needed room to explore; we dug holes, put humus and transplanted them. We shaded them and watered them till we could see signs of new leaves coming up.

From then, we started treated them like other fruit trees on the farm. They developed very fast and during the beginning of the fourth year, we saw the first flowers which all fell off. Soon after the second lot of flowers came and stayed. At the end of the fourth year, we ate out first mangoes. They were big with varied colors and sizes and very sweet.

We had six types of mangoes compost of apple ones in red color, big green flat sided ones called Malindi, big green aromatic ones called Dodo, round yellow ones called Boribo, medium size ones called Ngowe and big yellow oval shaped ones. We had a total of six trees that is one of each type.

The trees were about five feet tall. Cows too loved the fruit.

Birds built their nests on the trees. They were totally disease free. The region was dominated by mangoes.

We ate all that we harvested.

# Fruits Part 3: Passion Fruits

Like mango seedlings, passion fruit seedlings were of our own making too. We poured seeds of the ripe fruits we bought in the local market under one of the big indigenous trees in the homestead.

The seeds germinated and after two weeks, we transplanted some of the seedlings along the homestead fence on the right hand side of the home when facing the gate from the farmhouse position and left three seedlings under the tree.

They caught on and the tree got covered with tendrils while that side of the fence got completely clothed with tendrils and leaves. At the end of one year we were seeing flowers and fruits forming. We ate the first fruit and made juice during the second year.

The fruits were big and yellow unlike the purple type. The tendrils were perennial and just slowed down a little during the dry seasons and picked up with the onset of the long and short rainy seasons.

They were disease free. All we had to do was guard goats and bad boys passing by from reaching or disturbing the tendrils.

We ate all that we harvested.

# Fruits Part 4: Coconuts

We bought our first seedlings from the agricultural institute far off. We bought three types of seedlings: the tall type, the medium height type and the short type. The shorter, the faster they produce and the taller, the hardier they are.

The tall type takes about eight years to produce; the medium type takes about five years to produce while the short type takes about three years to produce.

We bought a total of eighteen seedlings at a height of about two feet. The holes to plant them in had to be deeper than those of all the other fruit seedlings planted in the homestead. The difficulty was in their accepting the shift to our stony location and was more pronounced than in the other fruit seedlings like the citrus yet this was a region dominated by them.

Of the eighteen, half died soon after despite our nursing them every day. The same difficulties that befell some of the citrus fruit seedlings bothered them. The area being stony made the roots find it difficult to penetrate deeper and that is why the surviving seedlings were slow in development and also caused the death of some.
Unfortunately, we never tasted any of them because we left the farm before any of them produced and also due to the fact that they were the last to be planted when the other fruit seedlings were already big.

# Fruits Part 5: Guavas

We transplanted guava seedlings from the bushes around the farm at the height of about six inches and dug holes for them in the homestead; put humus and put them in. They were slow to pick up but by the end of the second year, they started racing with time and by the fourth year they were flowering at a height of about four feet.

They did not need much care as the other fruit seedlings or trees but they flourished very well indeed. We pruned them often, but they did not need much manure or watering or weeding.

We ate the first fruits in the fifth year. Birds loved hanging around them at fruiting time.

They were four in total and the fruits were red inside. We would have liked to have the type with white color inside as well because they are pulpier but we were unable to come across them in the region.

We ate all that we harvested.

# Fruits Part 6: Mulberries

Mulberries were a joy to have around. We got them from the city prison grounds where prisoners grew them for sale as one of their training and rehabilitation projects for later life when they eventually leave prison.

We bought five seedlings at a height of one foot. We prepared holes for them and planted them. Since it was the onset of the rainy season, it did not take long for them to take root. They were pretty easy fruit bushes to manage and develop.

Within no time, they were very big bushes. While pruning them, we planted some of the stems by simply sticking them in the ground and they took root and developed very fast into big bushes. We did not have to go back to prison grounds to get more seedlings.

They fruited very easily too and we had two harvests every year: one after the long rains and another after the short rains. And the fruits also ripened very quickly. We saw the green fruits and before long they were pinkish and then dark red or blackish.

We ate the fruits and made juice out them. All the cattle we had loved the leaves and some of them even chewed on the stems or peeled the bark of the stems and ate them. When we did pruning that was often, nothing was wasted.

The only problems we had with them were weakness of the branches or stems. They snapped very easily during windy periods. Of course there was no wastage in this as the cattle got some feed.

Two, some type of big beetle loved the juice from their stems so much that one such beetle could gnaw on a stem just for four days and the whole stem was down. There was no wastage here as cattle again got some feed.

Thirdly, silk worms too loved this fruit and during fruiting time especially when the fruits were ripe, we saw lines and lines of span silk threads ready to be harvested or wrapped into spools.

Birds too enjoyed eating the fruits. But that was ecosystem-taking place in the case of the problems we encountered.

We ate all that we harvested.

# Fruits Part 7: Melons

We bought our initial seeds from the farmers' store. We planted melons during the heavy rains and during the short rains. During the short rains, we supplemented rainwater with irrigation through controlled plastic pipes; overhead sprinklers and water cans with nozzles especially in the evenings when the ground needed cooling down after very hot days.

We did not plant the seeds in the seedbed because we did not want to interfere with the delicate tendrils of the plant so we planted the seeds straight in the allocated area.

They seeds germinated well and progressed well.

It was never wise to irrigate in the mornings or during the day because evaporation would not let water stay on the ground due to extreme heat from sunrise. We had both the long lime green ones and the round dark green ones at the farm. The round ones seemed to do better than the long ones because of some worm infection.

Some worm simply targeted the half or midsize melons racing to bigger sizes by infesting the long ones more. We would go to bed after checking them and certifying that all was well. In the morning we would find several of them had been attacked during the night right in the middle of the fruit.

We resorted to applying a solution of ashes from the tripod stone cooker or charcoal burner mixed with red chilies. Alternatively, we applied a solution of Neem tree leaves, seeds or bark boiled in water and cooled before spraying. Both treatments gave us some good degree of response and the rest we left to ecosystem.

What we could not eat or sell, we gave cattle and poultry that loved them too. We never bought seeds again because we kept some after eating the fruits for the next planting season.

# Fruits Part 8: Sugar Apples (Custard Apples/Soursops)

We did not plant any of the sugar apple bushes in the homestead. The birds did it for us. Through seed dispersal, birds carried fruits from somewhere else, ate the fruits on top of the trees at our homestead and as they dropped the seeds, the seeds germinated and we got plenty of seedlings.

The seedlings were so many that we had to get rid of those that grew in areas not allocated for them. The seedlings grew very fast and within no time, we were eating the fruits in plenty. The bushes flowered twice a year following the two rainy seasons of the area.

Some of the bushes started flowering when they were very short like just two feet tall and that was like within two years. The bigger the bushes the more fruits they produced. The bushes did not need any maintenance at all. We did not weed around them or put manure around them.

The fruits were surely succulent and sweet. Poultry, birds and we enjoyed the fruits very much. Like guavas, almost no work went into farming this fruit apart from uprooting the unwanted seedlings, picking seeds dropped by poultry and birds, pruning the wild branches and harvesting the ready fruit.

The area was dominated by these fruits.

We ate all that we harvested.

# Fruits Part 9: Pawpaw

Like mango and passion fruit seedlings, the first different types of pawpaw we ate at the homestead, gave us seeds that we poured in the nursery in grooves and on lines in order to get seedlings. The germination at the nursery was fast and plentiful. The seedlings were very healthy.

We transplanted the seedlings in the designated areas in groups of threes or fours just in case some seedlings died or withered. Where all the seedlings made it, we pruned them by pulling out one or two respectively and leaving two.

The seedlings progressed very fast and very well indeed. Like guavas and custard apples, they too did not need much care once the seedlings stabilized in the areas where they were transplanted. They raced in their development and by the end of the first year some of them depending on the type were three feet tall and flowering.

This is a fruit that gave us a lot of food, money and very little work.

The leaves were food for cattle and vegetables for us; the fruit was food for cattle, poultry and us; the trunks and stems were manure. No part was useless.

We never bought seeds as we used seeds left after eating to plant in the nursery to replace the old

trees that reduced their fruiting after four years and eventually dried out and collapsed.

We had a variety of types of fruit: from small ones to very big ones and from round ones to long ones. Some were red inside while others were orange or yellow inside. Some of the trees were very tall while some were medium height or short. The tree trunks also varied in size with some having branches that bore fruits on them.

When mature going by the color change on all sides or a patch on one side, we harvested them and put them in cardboard boxes or wooden boxes or just left them lying on old newspapers on the corner of one of the verandahs with Lukina leaves added on top to help with the ripening process. They turned out yellow outside and sweet unlike those forced to ripen after being harvested prematurely.

The plants were totally disease free. At times, monkeys loved harvesting them for themselves during the day.

# Fruits Part 10: Bananas

We planted bananas in all the depressions in the homestead because bananas love plenty of water. Whenever it rained, water filled such places and bananas did very well in such circumstances.

We had several types of bananas. Some were tall, some medium height and some short. Their fruits were equally different with some bearing big bunches while some bore medium sizes and others bore small ones. The size of the bunch had nothing to do with the height of the banana stem. The size depended on the specie.

Some had slender stems while others had thick stems. Some types also had large stools while others had moderate stools. The main types were plantain, burro, apple-sweet, red and green cooking bananas. We had plantations in various areas with stools of bananas all over.

Some were also slow in development and production while others were a bit faster. We got the various types from various indigenous farmers in the region at a fee or in exchange for something else.

We ate the bananas cooked while green or ripe and cows ate the leaves and stems. The remains were turned into manure.

The cows’ cut feed for the next day was stored among the banana stools to shade it from the strong sun rays.

Bananas did well due to having been planted in the depressions where rainwater collected and too because they were heavily mulched to reduce evaporation with waste grass from the two sheds and urine and waste water too from the sheds.

We weeded around the stools often and did all we could to keep them moist to promote their welfare and development. The ones heavy with fruit and looked weak were supported with Y shaped poles cut from the forest nearby or manmade support from wood planks and nails.

In time of plenty, we harvested the entire ready crop while still green, washed, peeled and dried it thoroughly and kept it for future use as flour or cooked it bit by bit as dry bananas after soaking it in cold water for hours.

When needed ripe, we harvested those showing signs of complete maturity either by a few bananas or a whole segment starting to get ripe or when the heart of the bunch of the bananas showed considerable reduction in size as its outer layers peeled off and fell over the growth period.

In such a case, we removed all segments and put them in a pot or cardboard box or wooden box with Lukina leaves added in between and on top to help with the ripening process. During dry seasons, banana segments plus Lukina leaves could be put in shallow trenches with banana leaves on the bottom, lining the sides and on top to keep off soil and they got ripened there.

In all cases, ripening was fast and bananas came out clean, attractive and with real banana aroma filling the air. Alternatively, we hanged the whole bunch on the roof above the tripod fireplace in the kitchen for warmth to help in the ripening.

Bananas turned out uniformly yellow and very tasty unlike the commercial ones harvested before time and forced to ripen through scientific methods.

They were totally disease free and birds loved building among the top leaves. Just like pawpaw, monkeys sporadically harvesting them for themselves during the day.

We ate all that we harvested.

# Chapter 5: Vegetables

We had fourteen types of vegetables:


Part 1: Kale and Collard Greens
Part 2: Tomatoes
Part 3: Capsicum/Bell Peppers
Part 4: Okra/Lady’s Finger
Part 5: Eggplants/Aubergines
Part 6: Onions
Part 7: Amaranth
Part 8: Bitter vegetables
Part 9: Cucumbers and Zucchini
Part 10: Pumpkins
Part 11: Chili Peppers
Part 12: Fennel
Part 13: Broccoli

# Vegetables Part 1: Kale and Collard Greens

We bought kale and collard green seeds from the farmers’ store. We prepared the nursery and planted the seeds in grooves and on lines. The seeds germinated well and within two weeks the seedlings were ready for transplantation.

We had prepared the land well in advance for the transplantation with holes dug and manure mixed with topsoil placed inside. We did the mixing to stop the strong, rich and hot manure from burning the seedlings.

We watered them using watering cans with nozzles in the evenings when rains subsided. The seedlings caught on and progressed very well. The leaves became strong and a rich dark green color that was really inviting to the eye and appetite. And within one month, they were ready for harvesting.

After about two months or so of continuous harvesting for food and sales, green worms infested some of the leaves from beneath boring holes while hiding under the cover of the leaves. They were actually eating the leaves from below.

The plants were almost two feet tall then. We had to apply the same solution of Neem tree byproducts or that of ashes mixed with chili peppers. The issue was worse during the dry seasons. We collected the worms and buried them underground.

We picked the affected leaves, washed them in salted water and fed cattle and poultry with them.

We never managed to keep our own seeds from the crop because the heat increased intensely during the dry seasons and development reduced tremendously despite our watering the existing crop. We relied on the farmers' store for the seeds.

Our cows ate the stems at the end of the planting seasons since they remained juicy and green.

We did not plant them for irrigation during the dry season because we dared not have them in the absence of rains for fear of extreme vermin attack in hotter conditions.

# Vegetables Part 2: Tomatoes

We did not have to buy tomato seeds or seedlings because it was very easy to preserve the seeds from some of the very tomatoes that we used for cooking. All we needed to do was pour seeds out of a particular tomato we desired on hard brown paper or tray or board and dry them in the sun.

When dry, we folded the paper and kept it tied with the seeds inside or put the seeds on the tray or board in a bottle, sealed it and kept it safely. When time was ripe for planting, we prepared the seedbeds and poured the seeds in grooves and on lines. And within two weeks of daily evening watering, the seedlings were ready to be transplanted.

The ground had been prepared in advance with the area cleared and hoed, holes dug and topsoil mixed with manure put in. The weak looking seedlings were planted two or three in a hole while the strong looking ones were planted one in a hole.

They normally picked up growth very fast and developed pretty quickly with branches forming all round. As signs of flowering were noticed, we started driving sticks in the ground next to each plant so that tying could be done as early as possible to support the weak tomato plants and also to stop the fruits from forming on the bare ground.

We planted a variety of tomatoes especially the round ones (Heirloom), the long ones (Roma) and the small cherry tomatoes. Like kale and collard greens, after some time of harvesting, tomato blight attacked some of the fruits on some of the plants with portions of the fruit getting watery, soft and the fruit falling off.

We picked the affected crop and threw them away at the compost to rot and contribute to manure. We then applied a solution of Neem byproducts or that of ashes mixed with chili peppers to the affected plants. If the whole plant was affected then we uprooted it and placed it in the compost.

Tomatoes were both for home consumption and for sale.

We did not plant tomatoes for irrigation during the dry season because they withered very easily. We only planted them during the long and short rains.

# Vegetables Part 3: Capsicum (Bell Peppers)

We bought capsicum seeds from the farmers’ store the first time we planted them. After that, we left some of the crop to dry up intact so that seeds could remain sealed inside the outer cover.

We planted the seeds in the nursery in grooves and on lines and transplanted them after two weeks in the well-prepared garden. They were a hardy crop that was not affected by anything. They grew to a height of about two feet tall and then just spread sideways into bushes.

We planted the red and green varieties. Some of the crop was very big while some were medium or small in size. The crop grew very fast because what we saw as small today could be ready for harvesting next day but one.

They also lasted long in the garden despite harsh weather conditions so long as they got some water in the evenings and some weeding and manure. We mulched them to help them remain sturdy.

Capsicum became part of our daily breakfast. We woke up, picked a few every day, washed them and chopped them up, sprinkled a little salt with a bit of lime or lemon juice and we then enjoyed them. They were crispy and crunchy every day. We also sold some.

We watered the existing crop during dry weather but planted new crops every rainy season.

# Vegetables Part 4: Okra (Lady’s Finger)

Our first seeds were bought from the farmers’ store. Okra did not need seedbed treatment. We simply planted seeds in holes and on lines as we did with grain crops. They too were hardy like capsicum and grew very quickly and remained strong during the production period.

The crop developed even faster because what we saw as small today was ready for harvesting the very next day. They were young, tender and very tasty. The plant grew tall very fast as harvesting took place every day.

When it was done, the plant just dried out and broke. It did not need much attention a part from weeding and watering. But its life was not long so we planted it in different stages so that we could have some around every time.

It was totally disease free. Some of the ready okra crop or pods were left to overgrow and develop into seeds for planting next rounds.

We ate some and sold some.

We irrigated them in the absence of rain.

# Vegetables Part 5: Eggplants (Aubergines)

Like capsicum we bought the first seeds from the farmers’ store and after that dried our own out of some of the harvested crop. At times of planting we put the seeds in the seedbed in grooves and on lines and transplanted them after two weeks in the already prepared garden.

The seedlings were slow initially in development but once they picked up they did very well. The plants looked fresh and alive all the time even in extreme heat when other plants coiled or looked dull or lanky in the middle of the day and afternoons.

We had both the long curved ones and the big oval ones with a nice purple color.

We ate and sold them over a long period of time till the weather became very extreme.

They were disease free and did not demand much attention from us apart from weeding and watering as the temperatures changed for the worst.

We irrigated them in the absence of rain.

# Vegetables Part 6: Onions

We planted three types of onions: the leafy green onions (scallion), the bulb red type and garlic. We bought no seeds to plant. We simply took our kitchen onions bought for cooking and started planting.

In the case of leafy green onions, we just divided bunches into single pieces, chopped and cooked the top green parts and planted the bottom parts direct in the prepared holes. With rains and limited watering during dry spells, they took root and developed, subdivided themselves and clustered more and more.

While picking some for cooking, we either removed some pieces from clusters or just picked some of the green leaves and the clusters continued to flourish. They were totally disease free. With constant weeding and care they needed no further attention.

In the case of red bulb onions, we planted some that showed signs of germinating from the topsides while waiting to be used for cooking. They picked up pace in the prepared ground and grew beautifully and multiplied through budding underground from one to several and from several to many more.

We then subdivided the budding and planted them separately. We simply weeded and watered them sparingly when rains were insufficient or

disappeared for a while. They too were disease free. When ready, everything was harvested.

In the case of garlic, we also took those that showed signs of germination as we peeled them for cooking. We planted them in the prepared ground in sequence of a clove a hole and they developed into new bulbs and multiplied underground.

They too were disease free and the care was minimal as in the two above. We knew they were ready when the smell of garlic permeated the air around the area. Everything was then harvested.

Onions were strictly for home consumption.

We watered existing scallions during harsh weather.

# Vegetables Par 7: Amaranth

We had various types of amaranth. We did not plant the initial plants. It was done through seed dispersal by wind, birds, cattle and poultry through their dung. Where we put the initial wet dung and turned it into humus, became a bed of amaranth after the humus was taken to the garden.

Birds came around picking worms and eating seeds and dropped some of the seeds on the ground. Cattle ate grass from outside the farm mixed with amaranth plants and seeds got carried to the dung area with leftover grass and dung. Poultry ate plants given to them and dropped seeds on the floor that got mixed with their droppings and it was swept and dumped at the dung area.

Different types of amaranth thus grew with too much force in the dung area due to too much humus. There were small, medium and big leafed. There were red and green leafed. There were thorny and smooth stemmed. And that was the source of our initial seeds. When mature, we harvested the seeds and kept them ready for the planting season.

Amaranth was a seasonal vegetable in our farm, as it did not appreciate irrigation. We scattered the seeds in rows at the area intended for it during the long rainy season. And with addition of a little humus to the ground before planting, the seedlings sprung up quickly, healthy and ready to go.

In just two weeks, we could eat the first harvest of leaves that were rich in iron. And this continued, as the plants grew taller to about four feet. Approaching the end of the rainy season, the top parts of the plants showed signs of producing tussles of seeds instead of continuing to produce leaves for eating.

As the tussles showed maturity and the seeds started to fall, we harvested the tussles and dried them carefully so as not to lose seeds ready to be kept for planting in subsequent seasons. The stems were uprooted and given to the cows that adored them. The stems were juicy and flexible.

The leaves were usually too much for home consumption only and we sold some to our customers.

We did not irrigate it because it did better during wet weather only.

# Vegetables Part 8: Bitter Vegetables

We planted various types like dandelion and others called Mchunga, Mnavu and more.

The initial seeds we planted, we did not buy. The vegetables had grown wildly on their own due to seed dispersal by either wind or birds and thus gave us seeds. We simply harvested them and scatter planted them in rows in the areas we designated for them on the onset of the heavy rains.

Dandelion and Mchunga were eaten both by the rabbits and us while the others were eaten by us only. We did not sell any of them. The waste from all of them formed part of the compost where leftover grass by the cows, calves and poultry was put to decompose. All the types were considered medicinal in the region.

Seeds were harvested, dried and kept ready for future seasons. This type of vegetable was not irrigated. It just never did well with irrigation. It was left as a wild perennial crop that could choose to survive the heat or lie low and pick up again with the slightest rain.

These vegetables were completely disease free.

We used and ate all that we planted.

# Vegetables Part 9: Cucumbers and Zucchini (Courgettes)

Cucumbers and zucchini seeds we planted initially were bought from the farmers' store. We prepared seed beds with humus mixed with rich topsoil and planted the seeds in there in grooves and on lines and in two weeks with daily watering, the seedlings were ready for transplanting.

We transplanted them by the side fence on the right hand side just next to the passion fruit, as all the three are known climbers. They intertwined nicely and gracefully and grew along each other in perfect harmony.

They both did well initially then later cucumber suffered some infection by some worm that attacked the medium size crop. We resorted to plucking off the attacked crop and spraying the tendrils with Neem trees byproduct solution or a combination of ash and chili peppers.

This treatment helped to some extent and we also resorted to harvesting them very young before any attacks.

They were for home consumption only.
We did not irrigate them because we dared not plant them in the absence of rains for fear of extreme vermin attack in hotter conditions.

# Vegetables Part 10: Pumpkins

Our farm had a variety of pumpkins with round huge ones, small ones, long ones and short ones. Their tastes by way of starchiness and sugar content varied considerably. Their color inside ranged from orange to yellow to white. The outside colors also varied tremendously from green to orange to yellow to beige to striped.

We did not buy the initial seeds we planted. We merely dried the seeds of what we had cooked and kept them for the heavy rainy season. They too were a one-season crop that did not undergo irrigation. We dug holes and planted the seeds on lines directly at designated areas.

All the types developed quickly and helped us a lot in covering the ground with their wide leaves and thick delicate stems where grain crops were planted to reduce our task of pulling weeds.

As their tendrils developed and young leaves formed, we got plenty to eat by way of vegetables from the young leaves. And we continued eating the leaves till the crop’s period was over. Meantime, the flowers formed with so many bees around and the fruits followed.

Before we realized, the fruits were ready for picking and cooking. We were lucky in that they were not affected at all by any type of disease or worm or ant or animal. We therefore never treated them with anything. We simply removed the few

weeds and added humus to the soil when necessary especially just before planting.

The harvested crop also did not need any care. We simply left them lying on old newspapers one of the verandahs and only took what we needed to cook whenever we wished to.

The cows ate all leaves that we did not eat at the time of harvesting plus the stems. We dried the seeds and kept them for future rainy seasons. There was no waste from this plant.

This was a seasonal crop that needed no irrigation.

We ate all that we harvested.

# Vegetables Part 11: Chili Peppers

We planted both tiny and medium types.

The initial chili peppers we planted, we did not buy. We picked dry medium chili peppers (finger size) that were growing wild in the vicinity and kept the seeds. The tiny chili peppers (kidney bean size) were actually growing wild in our homestead and we just moved them to the area we wished them to be.

With the onset of the long rains, we dropped the featherweight medium chili pepper seeds on lines in the designated area and watched them grow very rapidly. They had beautiful green stems with rich looking green leaves and eventually clean green crop. This is one area in the farm that had almost no weeds. We did very little weeding there.

The green crop turned into red color as they dried up into seeds. Meanwhile, we picked some green ones every day for home cooking and for sale.

The tiny chili peppers followed more or less the same pattern as the medium ones. The differences between the two, was the degree of hotness. The tiny ones were hotter and more in demand especially by restaurants owners who paid handsomely for them.

Besides eating them at home and selling to our customers, we used them alone or as a concoction with dry ashes in a solution form to treat vegetables that showed signs of distress from vermin attacks.

We harvested sacks and sacks of the crop to be used and sold for a long time, as they were dry and red in color. The plants lingered on in the garden for a long time with less production during the hot and dry period, but we did not irrigate them.

The crop was totally disease free.

# Vegetables Part 12: Fennel

The initial fennel seeds we planted we bought from the farmers’ store. We planted them during the heavy rainy season without using the seedbed first. They germinated very well and before long the needle like leaves were wide spread.

They developed very fast and soon the smell of fennel was in the air as soon as the sun was up.

We ate all that we harvested apart from the roots that we put in the compost.

The crop was totally disease free.

We did not irrigate it because we dared not plant it in the absence of rains for fear of vermin attack in hotter conditions although we had not had bad experiences with it.

# Vegetables Part 13: Broccoli

We bought our first seeds from the farmers' store. We put the seeds in the well prepared nursery and they germinated pretty quickly. In two weeks we transplanted the seedlings to the designated area with holes already dug and humus put in and mixed with topsoil.

Because of the heavy rains at the time of transplanting, the seedlings settled in very fast and their growth was very promising and beautiful. In another two weeks, we started plucking the first leaves for eating. And this went on for a little longer before the crowns started forming.

One good thing about this vegetable is that neither worms nor ants disturbed it for some reason or other. We thought that it would suffer same effects like kale or collard greens because the leaves were more or less the same.

We ate the leaves and crowns and gave the cows the lower stems and roots at the time of clearing the area to await the next crop.

It was for home consumption only.

Just like the fennel, although we had no bad experience with it as far as worm attacks were concerned, we did not irrigate it because we feared vermin attacks in hotter conditions.

# Chapter 6: Grain Crops

We had four types of grain crops:


Part 1: Maize [Corn]
Part 2: Millet
Part 3: Sorghum
Part 4: Quinoa

# Grain Crops Part 1: Maize [Corn]

We grew a variety of maize. Our maize was the maroon, white, yellow and mixed color of maroon with white or yellow or both.

Maize occupied quite a chunk of our land, as it was one of the staple foods of our home. The first grains we planted we bought from the local market. It was not special maize in that it was not treated in any special way. It was simply grown, harvested, dried and bagged in the area ready for sale for consumption.

We would use this maize for as long as we did farming and so we never bought seeds again. We dried some of the chosen cobs and kept them in cob form or shelled for planting the following planting seasons, as it was a seasonal crop.

We chose the cobs with big grains, straight lines and many lines to be the seeds. We took them out to dry every two to three months so that weevils could not get a chance to infest them.

We stored them in dry and cool areas where air circulated properly day and night like in the granary. We also hanged some still in the cobs above the fire place in the kitchen where smoke kept them safe from vermin and dried them further.

At planting time, we prepared the land by clearing, hoeing, marking lines and digging holes. Humus had already been spread on the land before hoeing so that at the time of hoeing, the humus got mixed with the topsoil.

This was not a waste of humus because other crops like legumes especially beans, cow-peas, green gram and pumpkins planted in between the rows of maize (intercropping) benefited from the extra humus on the soil where there were no maize stalk roots.

Maize was planted before the legumes and pumpkins. After the first weeding of the maize, legumes and pumpkins were planted. This was done so to stop the legumes and the pumpkins from dwarfing or choking the maize.

The first round of maize weeding was done when the shoots had just three tiny leaves to stop any weeds from weakening them. After which the intercropping took place and as soon as the legumes and pumpkins started germinating, round two of weeding was done to stop weeds from choking everything.

After that the situation was easy because legume and pumpkin tendrils and leaves spread around and it was a question of uprooting the occasional weeds with very little use of the hoe around the area. The first two weeding sessions were very crucial and had to be timely.

Development of maize after that was fast and before we realized, tussles and female flowers were forming and bees were a buzz around the area.

We ate some of the maize green and gave the cows the green stems, husks and seedless cobs. The mature and dry maize took three to five months depending on the type to complete the whole developmental process. We dried some for flour. We selected some for seeds. The cows ate the half dry stems, cobs and husks too. Poultry ate some of the dry maize every day.

The roots of the maize stalks were left in the soil to rot into humus ready for planting the following year. We planted maize once a year during the long rains because it needed a lot of water during its developmental period.

The only two problems we had with maize were as follows. There was stalk borer disease here and there but it was not serious. The Agroforestry practice around the farm helped to some extent. Birds were fond of eating the top parts of some of the maturing cobs.

The other problem that we had occasionally was the destruction of some of our crops by monkeys, wild pigs and porcupines. We periodically woke up in the morning and found that one of the last two entered some areas with maize and broke quite some stalks in their struggle to reach the young forming cobs. Monkeys irregularly did the same damage right under our eyes day time.

Some lovers of hunting in the area trapped the last two for meat, caught them and the problem eased for some time. Some farmers kept vigil by sleeping at their farms with fires on all night to

frighten the two and keep them off the maize fields.

We simply chased monkeys away so long as there were men in the homestead to do the chasing because monkeys had no respect for women and would not budge.

The crop was for home consumption only.

# Grain Crops Part 2: Millet

Like maize, we planted millet in the same season and neighboring each other. Millet was a hardy crop that did not need very rich soil and its area did not need much humus at hoeing time. We bought out initial seeds from the local market after which we dried and kept our own from subsequent harvests.

We made grooves on the designated area on lines and scattered seeds in the grooves from one end of the line to the other and slightly covered the grooves with topsoil. We did this because the seeds are small.

It was weeded as in the case of maize early enough to avoid dwarfing by weeds. It was intercropped with pumpkin soon after to help in the weed control as it is a tall crop just like maize.

Millet had one big problem.  Birds loved it and as soon as the seeds started forming on top of the stems birds became a menace and another job for us to deal with. We had to literary chase birds by throwing small stones at them. We had to stay outside in turns to deal with them during the day.

The birds ate their share and we harvested the remaining crop for our food and for our poultry. We threshed it from the sheaves and then ground the seeds into flour for home consumption.

Some of the grain, we cooked like rice and ate with stew dishes. The stems not being as sweet as that of maize were used mostly for mulching and manure, as the cows did not like them. We ripped the leaves off and gave them to the cows though. Like maize, the roots were left to rot on the area to rot and turn into manure.

Like some maize crops, millet took up to five months to mature and dry up ready for use. Since it is a crop that could survive in the dry season, we could have planted it twice a year but we feared dealing with birds twice a year.

The crop was for home consumption only.

# Grain Crops Part 3: Sorghum

Sorghum and millet actually have exactly the same story. Even their stems and height is the same. We got our first seeds from the farmers' store. The only difference between them was the colors of the sheaves and the ripe crop. Sorghum seeds were something between lime green, light yellow and cream color while millet was white, red or darker.

We made grooves on the designated area on lines and scattered seeds in the grooves from one end of the line to the other and slightly covered the grooves with topsoil. We did this because like millet the seeds are small.

Sorghum too had the same problem with birds and we treated it in the same way. The stems also were not a favorite of cows and they too formed mulch and manure. We also gave the leaves to the cows. It was also intercropped with the pumpkin crop. Like maize and millet the roots were left to rot on the area and to rot and turn into manure.

We threshed the harvest from the sheaves and got enough for our poultry and ourselves. We cooked it whole; got flour from it and kept some of it as seeds for the following year. Its life was exactly the same duration like millet. Some of the grain was also cooked like rice with stew.

It was also a crop like millet that could survive in the dry season and we could have planted it

twice a year but we feared dealing with birds twice a year.

The crop was for home consumption only.

# Grain Crops Part 4: Quinoa

We planted a mixture of red and black quinoa commonly known in the area as finger millet and specialty for babies' porridge and that of invalids due to its high nutrition value. We bought our first seeds from the local market.

Quinoa is this small round grain that is just a little bit bigger than amaranth or chia. It is normally black, red or beige in color but very nutritious. We preferred the darker colors.

The actual mature plant was like two feet tall. In fact, if you were not familiar with it, you could think or conclude that it was mere grass or weed.

The stem is thin like a small size knitting needle and green in color. The leaves are equally thin, small and scattered.

Like millet and sorghum, it was both a long rainy season crop grown at the time of planting maize and also during the dry season. Just like millet and sorghum it did not need much humus added to the soil before planting. And like millet and sorghum, it was a hardy crop.

We made grooves on the designated area on lines and scattered seeds in the grooves from one end of the line to the other and slightly covered the grooves with topsoil.

We did not intercrop it because it is short and its lines were closely designed to make fighting weeds easier so that as we uprooted weeds from one side of the line, we did the same to the opposite side. When it was about one and a half feet tall, the production of leaves slowed and sheaves like development started forming on top.

The sheaves bore millions and millions of tiny seeds and that was the crop.

At the time of harvesting, we cut the top parts carefully so as not to drop many seeds. We dried them and threshed all the seeds out. Like millet and sorghum the cows did not like its stem and it formed compost or mulch.

It had more or less no meaningful leaves for cows to eat. Like maize, millet and sorghum, the roots were left to rot on the area to rot and turn into manure.

We cooked it whole; we got flour from it for making porridge and we kept some of it as seeds for the following year. It had one problem; birds targeted it too. Poultry would have had a field day with it as well due to its height, but we did not give them that chance.
We could have planted it twice a year but we feared dealing with birds twice a year.

The crop was for home consumption only.

# Chapter 7: Legumes

We had four types of legumes:

- Part 1: Beans
- Part 2: Cow-peas
- Part 3: Green Grams
- Part 4: Pigeon Peas

# Legumes Part 1: Beans

We got our first bean seeds from the remains of what we bought for cooking. The beans were produced in the hinterland where they did extra well; transported and sold in the local market for food consumption.

We planted both the climbing bean, flat in shape and mixed in color called Lima bean, which we planted along the front side of the fence and the ground bean, plain red or mixed color among the grain crops to help in controlling weeds through ground cover via crawling and enriching the soil with their roots.

We always planted the ground beans as soon as the maize seed had germinated and was like two inches tall with three visible leaves. The two developed together very well as each had its own lines but next to each other.

The lines alternated with just enough room for us to move around and allow the beans’ tendrils to spread around on to the lower parts of the maize stems and cover the ground almost fully hence choking weeds from below.

This intercropping did not stop bees from following the bean flowers at the right time despite their position well below the maize stalks. The purplish and yellowish flowers of the bean plants attracted the bees that did their job and before long, bean pods formed and became full

of tender beans some of which we ate while young and green.

We picked and ate the soft green leaves throughout the growing period as vegetables. Beans matured a little earlier than maize; in three months and we harvested them during the fourth month as they dried up.

The ground bean provided vital nitrogen in the soil through the nodules on their roots that helped enrich the soil for the maize that took too much out of the soil and returned very little.

At harvesting times, we cut the stems just above the ground and left the roots in the ground with the nodules intact. The stems, branches and the hard leaves we gave to the cows as feed. After shelling or threshing the dry pods, we gave the empty pods to the cows too.

The fence bean was a perennial crop that lingered on the whole year long after the heavy rainy season was over into the dry season and into the short rainy period. The production slowed down during the dry season and picked up in the short rainy period. We picked and ate the fresh bean throughout the year.

We left some pods on the vine to dry and we harvested them and kept them for planting later on. The whole dry tendril structure, a part from the roots, was given to the cows as feed.

Sometimes, we dried the whole tendril structure of the fence bean and the ground bean stem, branches and hard leaves plus pods and burnt them into

ashes and made a solution from the ashes after sieving. We used the solution as salt to soften hard foods at the time of cooking instead of using a tenderizer.

Beans had to be protected from destruction by poultry and that was one of the reasons why our poultry had to stay inside daytime. Poultry loved the flowers, young green beans and the fresh leaves. That is also why sheep and goats had to be tethered because they would eat all the leaves, young beans and top stems. Birds also loved picking the young forming pods.

All the beans were for home consumption. We never bought any more bean seed because we kept our own from each harvest.

# Legumes Part 2: Cow-peas

Like the ground bean, we planted the pink cow-pea within maize plantation. There are other colors of the cow pea like the black ones, red ones and white ones, but we preferred the pink ones that we grew up with as children.

Both cow-pea and the ground bean are very similar in development and way of production. Cow-pea bears the same traits like the bean in enriching the soil with their nodules and providing ground cover as they crawl and choke weeds.

And like the beans, we planted the remains of what we bought for cooking.

We planted them at the same time as the bean except that we did not mix the two. One was planted in one section within the maize plantation and the other in another section in order to make our work easier during harvesting.

Cow-peas were eaten either young and green or dry.

Cow-peas like beans had to be protected from destruction by poultry, sheep and goats. Birds also loved picking the young forming pods. The remains after harvesting formed part of the cow feed or burnt into ashes to be used as salt.

All cow peas produced were consumed by us.

# Legumes Part 3: Green Grams (Lentils)

There are both green and black grams but we preferred the green type. Like ground beans and cow-peas, green grams have the same pattern in development and production except that they form small bushes while the two crawl on the ground. And like the beans and cow peas, we planted the remains of what we bought for cooking.

We did not cook young fresh green grams. They were all harvested dry and cooked. The stems, branches and leaves were used to form manure for the following year’s planting season because they were not succulent enough for the cows to eat, but their precious roots bearing nodules were left in the soil to enrich the soil for the following year’s crop.

Green grams like beans and cow-peas had to be protected from destruction by poultry, sheep and goats. Birds also loved picking the young forming pods.

All green grams produced were consumed by us.

# Legumes Part 4: Pigeon Peas

Pigeon peas were tree like legumes that we planted parallel to the fence throughout the homestead. We simply planted some of the pigeon peas we bought for cooking. The seeds were either a mixture of red and light brown in color or all light brown.

The crop did very well all the year round till the trees reached their peak and we uprooted them and planted new ones with the onset of the next heavy or short rains. It was actually a perennial crop for several years.

The mature trees were like six feet tall. The trees started flowering and producing pods at a height of about three feet. We ate the fresh green pigeon peas from that age to the age of maturity. At the same time we left the mature pods on the trees to dry up for harvesting later.

There was constant harvesting of fresh ones and dry ones till the end of their lives. The trees eventually got dry and were used as firewood. The dry harvest was kept for future cooking and some as seeds for planting the following year.

We planted them for our own consumption.

# Chapter 8: Groundnuts and Tree Nuts

We had three types of nuts:

- Part 1: Bambara Nuts
- Part 2: Peanuts
- Part 3: Cashew Nuts

# Nuts Part 1: Bambara Nuts

Bambara nuts are a very unique crop that is very tasty with a wonderful aroma, but not very common. Many people do not know them or have not heard of them.

There are two types of Bambara nuts, the dark red colored ones and the beige ones. They are round in shape and very hard as a mature crop. They are eaten both young and green and as a mature crop. The seeds grow in pods underground just like peanuts.

Their roots have nodules just like beans. The plant is exactly like the peanut one with the same type of structure of leaves and spreading low on the ground but not to a large extent. The leaves are a rich dark green color and small.

We planted our first crop from the remains of what we bought in the local market for cooking. We preferred and planted the dark ones.

We intercropped it with maize in a different section from the beans and cow-peas to ease our work at harvesting time. It too was a good ground cover in choking weeds. It was planted after the maize plant was the same age as that at the time of planting beans and cow-peas.

The crop had to be added additional soil at the age of like one and half months to two months as it showed signs of spreading on top and around and

flowers forming so that the pods underground could form properly and multiply as much as possible.

We simply took small hoes and trowels and heaped soil from around each plant on to its base to form some sort of mound wherein lay the developing pods.

In four months, it was ready for harvesting. We knew it was ready because the soil-cover started cracking which was a sign of the pods’ maturity. Before drying the pods, we cooked and ate some fresh in pods. We then dried the rest for future cooking and kept some as seeds for future planting.

The cows loved the vines including the pods and roots. Its harvesting simply involved uprooting the whole plant from the mound of soil. We then picked the pods from the roots.

This was totally a problem free crop. Due to its needing adequate rain, we did not irrigate it.

The crop was for home consumption.

# Nuts Part 2: Peanuts

There is no much difference between peanut and Bambara nut apart from their shapes and colors. The production period, development and treatment are exactly the same.

We ate peanuts freshly harvested just like we did with Bambara nuts. The rest we dried for future eating and kept some as seeds. Cows also loved the vines including the roots and pods.

We again got our first seeds from the remains of what we bought from the local market for cooking. There were many types of peanuts, but we preferred the giant size that was pink in color and three to four times the size of the ordinary small type.

This was also a totally problem free crop. Due to its needing adequate rain, we did not irrigate it.

We grew peanuts for home consumption.

# Nuts Part 3: Cashew Nuts

Although this was a cashew nut region, the plant was difficult to nurture. The young age was the most difficult. It grew very slowly and stagnated at times. In fact we were informed that the big cashew nut trees we were seeing around that were productive had been in existence for a very, very long time, that is over a century.

Some of the old men and women we saw around saw the trees more or less the same way as children growing up. They had the same type of difficulty as the coconut seedlings and some of the citrus fruit seedlings. The area being stony made the roots find it difficult to penetrate deeper for better survival and that is why the seedlings were slow in development and some died.

We struggled all the same to have at least a few trees at the farm. When they did well we smiled and when they did badly we sulked, but that is the nature of farming. We had five seedlings on the ground.

We weeded around them often and applied manure and water but that still did not help them much.

Unfortunately, like coconuts, we never tasted the nuts because they had a long way to go to fruition.

This was a region dominated by cashew nuts.

# Chapter 9: Root Crops

We had three types of root crops:

Part 1: Cassava/Manioc/Tapioca
Part 2: Sweet Potatoes
Part 3: Ginger

# Root Crops Part 1: Cassava/Manioc/Tapioca

We got our first three types of seeds from three different neighbors. All we needed were several stems to enable us develop our own. This was an area dominated by the crop. Like maize, it was a staple food of the area.

We got the big type with a thick cover, the medium size with a red cover and the small type with a thin cover. The last one was our favorite because it cooked very quickly and was starchier. All these three were slightly different in taste and texture but they all developed very well.

Cassava was a perennial crop that went on and on even during the dry season except that production slowed a little in the dry season. We harvested and ate cassava throughout the growing period and continued to add more stems in the ground to increase our acreage.

We ate the soft tender leaves as vegetables all the time. Harvesting the mature tubers for eating did not mean uprooting the whole plant.

We simply carefully uncovered the crop in the ground using bare hands or a knife or a small hoe or trowel or piece of stick to lift what we needed and covered the rest to continue developing.

If by mistake more cassava was harvested for cooking than the amount required, we simply returned the extra to the ground where the harvesting was done

and covered it with the soil or we let it stay uncovered in the long grass where sunshine could not penetrate it seriously and dew took care of it at night and in the morning hours. We could then collect it and cook it after a few days.

But after several years of eating from the same crop, we uprooted everything and started all over again with the stems from the same crop being stuck in the ground to start a new crop during both the long and short rainy seasons.

The harvested crop was washed, peeled and dried thoroughly and kept for future use as flour or cooked bit by bit as dry cassava after soaking it in cold water for hours. The cows loved the peels. Goats loved the leaves. Nothing was discarded because even the end roots were left to rot on the ground and formed humus.

Cassava was a hardy crop that did not need much attention a part from weeding carefully so as not to disturb the tubers. It also suffered no attack from any vermin.

We grew it for home consumption.

# Root Crops Part 2: Sweet Potatoes

Sweet potato is another crop whose seeds we got from neighbors. We had three types with different colors inside: white, yellow and purple while the outside colors were either red or beige. The leaves were slightly different in size and shape too.

We prepared the land by heaping topsoil into mounds and long ridges. We then planted the vines inside the mounds and ridges with four vines per mound and two lines of vines on the sides of the ridges or one line of vines on top of the ridges.

Weeding on the area was strictly pulling weeds by hand or using a blunt stick so as not to disturb the roots that were forming into potato tubers.

And every now and then we scraped the soil between the mounds and ridges and heaped it back up to keep the tubers properly covered.

Meantime, as the tubers developed, we picked and ate the green leaves. At harvesting time, we did exactly what we did with cassava. We lifted only the mature tubers for cooking and left the rest covered to continue growing.
And if by mistake more sweet potatoes were harvested for cooking than the amount required, we simply returned the extra to the ground where the harvesting was done and covered it with the soil

or we let it stay uncovered in the long grass where sunshine could not penetrate it seriously and dew took care of it at night and in the morning hours. We could then collect it and cook it after a few days.

At the end of its season, we uprooted everything and gave the cows the vines and the remaining leaves. We washed, peeled and dried the tubers and kept them for cooking in future bit by bit as dry sweet potatoes after soaking them in cold water for hours.

We had one problem with the tubers sometimes. Some variety especially the purple one was generally attacked by some potato bug that literary crawled inside the growing tubers while destroying them through rotting. We uprooted them and dumped them at the compost area to rot and become humus.

We only planted this crop during the heavy rainy season.

The crop was for home consumption.

# Root Crops Part 3: Ginger

Ginger is one of the crops that we grew from pieces of fresh ginger we bought for home consumption. We just buried the pieces in the prepared ground during the rainy season and shoots and buds appeared within no time.

As the leaves formed, rhizomes also formed underground which would be fresh ginger for our future use. As the roots developed, the aroma at the sight was irresistible and that was assign that some of it was ready for harvesting.

It was totally disease free. All it needed was weeding, a little humus and the rains.

We planted it totally for home consumption.

# Chapter 10: Grasses

We had seven types of grasses:

Part 1: Lemon Grass
Part 2: Sugar Cane
Part 3: Napier Grass
Part 4: Mukuna
Part 5: Elephant Grass
Part 6: Couch Grass
Part 7: Lukina

# Grasses Part 1: Lemon Grass

Lemon grass was planted in our farm strictly for flavoring tea every morning. It was very easy to manage right from the word go. We just got a single segment from a neighbor and started our own bush of lemon grass during the rainy season.

Like scallions, the segment grew and subdivided itself into more segments and became one very thick bush. We intern subdivided the thick bush into smaller bushes and planted them to increase our crop and that developed further into many thick bushes.

We picked the fresh green leaves and cooked with them. We pruned the dry leaves and mulched with them.

It was a perennial crop and so it just slowed down growth during the dry season and picked up growth during the two rainy seasons.

It was completely disease free and required only weeding.

It was for home consumption only.

# Grasses Part 2: Sugar Cane

We bought several long poles of sugar cane from the local market and ate them. We planted the top parts of the poles that were not sugary enough during the rainy season and they developed into budding bushes and grew into whole poles of fresh sugar cane with time. We had three color types: the red, light brown and yellowish/ greenish ones.

And as years passed by and we harvested any of the poles, we replanted the top ends. The waste from chewing the canes we used as mulch. The outer cover was also used as mulch.

Like lemon grass, it was also a perennial crop and it just slowed down growth during the dry season and picked up growth during the two rainy seasons.

It was completely disease free. It required little attention like weeding and a little humus.

It was grown solely for our consumption.

# Grasses Part 3: Napier Grass

We planted Napier grass for cattle and with other plants like Neem trees, the mighty baobab and some indigenous hard wood trees in and around the farm, helped to act as barriers and deterred parasitic worms or insects like stock borer from devouring our crops like maize, millet and sorghum to near total destruction. That was Agroforestry taking place.

Napier grass belongs to the sugar cane family except that we did not eat it due to its reduced sugar content. It was planted strictly for cows. It is sweet for cattle but not delicious enough for man. It is as sweet as the top end of the sugar cane pole. It is also thinner and weaker than sugar cane.

Sugar cane has various colors while Napier grass has only one color, lime green. It also matures faster than sugar cane. At our farm, we could harvest a patch of Napier grass every two weeks during the rainy season.

We chopped it up into tiny portions and fed the cows that loved it dearly. During the period that the cows ate Napier grass, there were no remains in the feeding troughs or waste on the ground. Everything was consumed. Whoever was sweeping only removed wet dung and nothing else.

We planted it in rows to make it easy to weed, water, put humus and harvest. We got the initial

stem seeds from a neighbor.

It was completely disease free.

# Grasses Part 4: Mukuna

Mukuna was a wild legume that we planted along the back side of fence just like the Lima beans that were on the front side. We got the seed from the agricultural officer who recommended it as good feed for dairy cows.

It had thick tendrils that acted like stems or stalks and were not easy to break. The leaves were big, robust and dark green and that is what the cows loved. We harvested the pods with seeds, dried them and kept them for future planting.

We harvested the leaves every so often for the cows to feed on. During the rainy season it multiplied very fast and blocked vicinity completely on that side of the fence.

It was a perennial crop that lied low during the dry season and sprung up with the onset of fresh rains and the thick tendril trunks were hardy enough to store some moisture.

It was completely disease free and did not require any attention, not even weeding.

# Grasses Part 5: Elephant Grass

Elephant grass was common in some parts of the farm and around the farm. It grew in plenty further away from the farm. We actually did not plant this grass in the homestead as it grew on its own.

It is the grass that we harvested using a scythe and stored as hay for the cows to feed on during the dry season when greenery was rare. On a spell of a few dry days during the rainy season, we harvested a lot of it and left it out for hours before bundling and tying it for storage in the barn nearby.

This was possible because it is a tall and wide grass that is easy to handle that way.

# Grasses Part 6: Couch Grass

The final grass was the couch grass that we used to slash and give cows. It was all over the compound, along the track and around the farm. Where we did not slash it, sheep kept the areas clean with their good concentration while eating.

It was a short and thick grass with tough roots that grasp the soil really tight. It could compete with crops on nutrients if not taken care of.

# Grasses Part 7: Lukina

These were tiny leaves from certain big trees called Lukina that we harvested from along the track in front of our farm and along the road a short distance away. Cows loved it so much and we used it as feed at milking time. Lactating cows tended to produce more milk when fed these leaves.

We did not plant these trees. They had been there for years but when their pods burst and their seeds got dispersed, more young seedlings took root and many more young trees developed.

# Chapter 11: Conclusion

All in all it was a question of losing some and winning some. We benefited tremendously and lost minimal amounts. But the joy in having the chance to see animals, poultry and plants grow from nothing to something was more than satisfying.

We watched the ground crack for the seeds to germinate and face the sun while the roots penetrated downwards. Two leaves turned into numerous leaves and weeding was necessary over and over as development progressed. The ground consumed water to sustain growth. Manure enriched the soil and fed the plants.

Flowering came about and bees were busy doing pollination. Maturity followed and before too long we were eating and selling the end products.

The animals conceived and embryos turned into calves, kids, lambs, litters, chicks in our presence. The young ones developed into adults as we observed and brought forth their own young ones.

It was beautiful. There is no better life than this. We ate what we knew. We grew and bred what we liked. Nature was revolving right there.

In times of plenty, we peeled washed and dried excess green cooking bananas, cassava and sweet potatoes in the hot sun and stored them ready for use in future when the harvests were low. We also

salted and smoked excess mutton and goat meat and kept it safe for cooking later.

Our homestead was a haven of peace for different creatures. Our vegetables, grain crops, root crops, fruits and animal feed did well because of our enduring care. Our cattle and poultry thrived due to the nurturing and sustenance we gave them. We survived well due to the adequate livelihood we made available.

Bees came because of flowers on plants and trees. Birds of various types both big and small came to pick worms and grain crops. Wild animals, occasionally harvested our grain crops, bananas, fruits and eggs. But, all of them were simply taking their share to keep the ecosystem balanced.